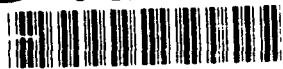


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**Saddam Hussein's First War:  
An Assessment of Iraqi Operational Art  
In The Iran-Iraq War**

**A Monograph  
by**

**Major David B. Lacquement  
Military Intelligence**

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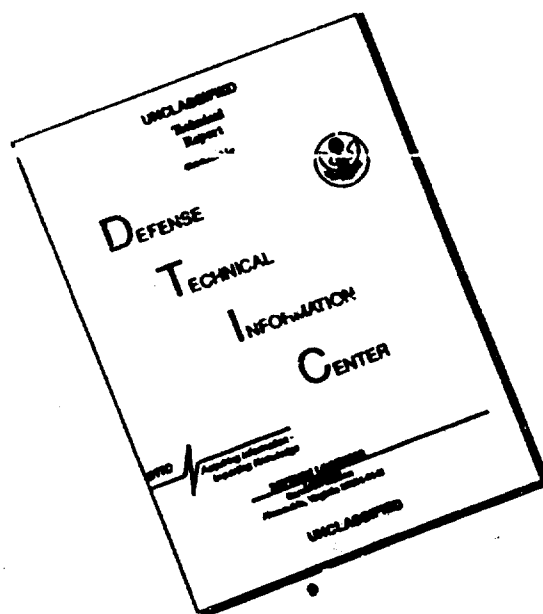
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## ABSTRACT

SADDAM HUSSEIN'S FIRST WAR: AN ASSESSMENT OF IRAQI OPERATIONAL ART IN THE IRAN-IRAQ WAR by Major David B. Lacquement, USA, 56 pages.

This monograph examines the Iran-Iraq War from an operational perspective. This eight year war represents the Iraqi's only experience with successful operational maneuver. As such, it is likely that lessons learned, particularly in the final campaign where they synchronized successive battles, will shape their operational thinking for the foreseeable future. Should U.S. interests again be threatened by a revitalized Iraqi military, a thorough understanding of how they operated in this war will be relevant in assessing their future capabilities.

This study proposes to answer the question: to what degree did the Iraqis conduct operational art in their prosecution of the Iran-Iraq War? Classical and contemporary theory are first examined to develop sound criteria for the identification of operational art. Four criteria are identified as representing the essence of good operational art. They include the ability to: 1) conduct joint operations, 2) execute synchronized, simultaneous and successive operations, 3) conduct operations across the breath of the theater, and 4) provide logistical support for distributed operations. Then the war is briefly reviewed to assist in placing elements of the analysis in their proper perspective. The analysis section then examines the historical evidence using the four criteria to answer the research question.

This examination of Iraqi performance reveals little evidence of operational art early in the war. However, by their final campaign it is apparent that the Iraqis were practicing operational art. They were able to conduct joint operations, effectively integrating major army operations with navy, air force and guerrilla actions. Throughout the final campaign, operational synchronization was apparent. Multiple corps were employed to attain a combination of terrain and force oriented objectives. Finally, the operations were executed and supported across a broad, 700 kilometer front.

While it is doubtful that Marshall Tukachevski, Soviet theorist, would have been dazzled by Iraqi operational art, he most certainly would have recognized some of his tenents in the Iraqi's final casmpaign. Like the evolution of operational art in the Soviet Union, Iraqi operational art will likely continue to develop.



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## I. INTRODUCTION

Despite eight years of intense and bloody conflict resulting in three million casualties, the Iran-Iraq war has not produced a level of study consistent with its magnitude.<sup>1</sup> Most works that do exist focus either on strategic or tactical aspects, ignoring the operational level of war. This paper attempts to fill a portion of this void by offering analysis on Iraqi operational art. The research question I will answer is: to what degree did the Iraqis practice operational art in their prosecution of the Iran-Iraq war?

Examination of Iraqi war fighting is significant because Iraq, as described by former Secretary of Defense Frank Carlucci, is unquestionably "a pivotal economic, military and political power in the region."<sup>2</sup> Desert Storm has clearly diminished this regional super power status, but only temporarily.

Demographically, Iraq remains the largest Arab nation east of Egypt.<sup>3</sup> Agriculturally, the confluence of the Tigris-Euphrates River system provides Iraq the capability for total agricultural self sufficiency. Although offensively neutered, Iraq still retains a regionally significant military capability. (see Appendix A, Middle East Military Balance) Finally, Iraq's oil reserves are reportedly among the largest in the world, second only to Saudi Arabia.<sup>4</sup>

These elements of national power should allow a relatively rapid post war recovery, perhaps allowing Iraq to re-establish itself as the preeminent power in the Persian Gulf before the end

of this century. In this eventuality, Iraq will again have the potential to jeopardize regional stability and to threaten U.S. interests - primarily, the flow of Persian Gulf oil which accounts for over 65% of the world's supply.<sup>5</sup>

Should U.S. interests be threatened by a revitalized Iraqi military, a thorough understanding of how they operated in their eight year war will be relevant in assessing their future capabilities. The Iran-Iraq war represents their only experience with successful operational maneuver. As such, it is likely that lessons learned, particularly in the final campaign where they synchronized successive battles, will shape their operational thinking for the foreseeable future. Thus, whether advising regional allies or intervening directly with U.S. forces, knowledge of Iraqi performance in the Iran-Iraq war will remain relevant.

Before studying Iraq's operational performance in the Iran-Iraq war, I will briefly address the significance of studying operational art. The U.S. Army defines operational art as, "the employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization and conduct of campaigns and major operations."<sup>6</sup> This level of war spans the gap between strategy and tactics.

Surveying the history of war, the delineation of this level of war is relatively new. For centuries the terms strategy and tactics sufficiently covered the spectrum of war. Strategy comprised the way armies conducted war in general and the

maneuvers that armies conducted before actually meeting. Tactics addressed the actual maneuvers employed by armies in the conduct of battles, once the armies met.<sup>7</sup>

With the increasingly large scope of operations, commanders could no longer view the entire battlefield. Additionally, most wars could no longer be won by a single, decisive battle. They had to be won through the design of campaigns, linking successive battles to form major operations. This increase in scope presented a new level of war which was first identified by the Germans in World War I as operational.<sup>8</sup> Today, operational art provides the essential link between tactics and strategy, ensuring that battles are woven together to form coherent operations, which attain strategic objectives. Thus, the ability to conduct effective operational art is essential if a nation is to be able to employ military forces to attain strategic objectives.

Although difficult to dispute the importance of operational art, criteria for conducting a subjective analysis of operational art are more difficult on which to find consensus. Four such sets of criteria are listed in Appendix B. I further distilled the criteria identified by School of Advanced Military Studies Professor James Schneider, using the existence of sound theoretical substantiation as the principle discriminator. This process identified four primary criteria which represent the essence of good operational art. They include the ability to: 1) conduct joint operations, 2) execute synchronized, simultaneous and successive operations, 3) conduct operations across the

breadth of a theater, and 4) provide logistical support for distributed operations. These standards for good operational art are explained and validated with theory in the following section and form an analytical lens to evaluate the historical evidence.

This evaluation of evidence is constrained by the extensive disinformation efforts practiced throughout the war by both sides, against the enemy and their own populations. Further complicating accurate analysis, access by scholars and journalists has been very restricted. These factors, combined with the omnipresent fog of war, limit the number and scope of scholarly works available. In spite of these challenges, sufficient unclassified evidence is available to allow initial conclusions to be drawn concerning the Iraqi conduct of operational art.

I will first examine the theoretical foundations which support the four criteria comprising operational art. Then I will provide historical background, by briefly reviewing the causes and the five major phases of the war. This will assist in placing elements of the analysis in proper perspective. Finally, I will examine the war in depth, using the criteria as the basis for evaluating the Iraqi performance and answering the research question. This will lead to conclusions and implications about the level of operational art practiced by the Iraqis in their war with Iran.

## II. THEORY

This section attempts to identify key elements of operational art, using theory as Carl von Clausewitz envisioned, "...to distinguish precisely what first seems fused..."<sup>9</sup> This theoretical dissection of operational art into four discrete components provides an analytical tool for use later in the paper. This tool consists of four theoretically derived criteria which form the lens I will use to examine Iraqi operational art. While not exclusively Soviet based, this section draws heavily on Soviet theoreticians for two reasons. First, because of their expansive geographical setting, the Soviet military was the first to appreciate the unique and important role of the operational level of war.<sup>10</sup> Second, this appreciation for operational art is reflected by Soviet authors who developed operational theory more comprehensively and prolifically than did their western counterparts, whose study and writing were more tactically oriented. Examining the theoretical foundations of our criteria provides a cornerstone of legitimacy for our future analysis.

The ability to conduct joint operations is critical in developing the overwhelming combat power at the decisive point in space and time. Maximum combat power is produced by designing operations that efficiently combine the fires of multiple services in a synergistic fashion. Marshall Mikhail N. Tukachevski, the Soviet Union's preeminent operational theorist, speaks to this need for joint operations with his frequent references to the

importance of cooperation between the arms [services], particularly tanks and aircraft, in the "all arms battle."<sup>11</sup> He believes that the synergistic effect of this joint "aviation-artillery attack to the depths of the defense" is key to "developing tactical success into operational success."<sup>12</sup> He further notes that "combined arms operations as a rule always include powerful air squadrons operating jointly with the other combat arms."<sup>13</sup>

The means to deliver large scale operational fires has been significantly enhanced since Tukachevski's initial theoretical writings. Recently, Colonel Leonard D. Holder, former Director of the School of Advanced Military Studies and one of the Army's preeminent thinkers on operational art, stated that "campaigning involves...fire on a very large scale..."<sup>14</sup> In large measure, this ability to deliver effective operational fires throughout the enemy's depth has been made a reality by the advent of joint operations. Today's operational commander has a plethora of joint, deep strike assets. When synergistically orchestrated, they can set the conditions for tactical success on the battlefield. Because of the inherent advantages of synchronizing multi-service assets, Colonel Holder characterizes the nature of war today as "inescapably a joint activity when applied to land warfare."<sup>15</sup>

The ability to execute synchronized, simultaneous and successive operations is essential to both joint and single-service operations. When conducting operational art, the design

and execution of operations must exhibit effective timing through the synchronization of simultaneous and successive operations. School of Advanced Military Studies Professor, Jim Schneider, identifies simultaneous operations as "the heart of operational art".<sup>16</sup>

By definition, simultaneous operations must be synchronized to be effective. Tukachevski writes of the importance of "controlling [synchronizing] such heterogeneous actions as landings by mechanized airborne troops, breakthrough bombing raids, the artillery battle, infantry actions and so forth..."<sup>17</sup> He instructs that to develop this synchronization one must "outline the sequence in which deployed enemy battle formations will be struck."<sup>18</sup> When properly synchronized, simultaneous operations can generate operational advantage. So significant is this advantage, that Professor Schneider refers to the "integration of temporally and spatially distributed operations into one coherent whole" as "the hallmark of operational art."<sup>19</sup> This operational simultaneity can occur in both the breadth and the depth of the theater.

Liddell Hart sees the advantage of such broad operations when he advocates the importance of "dispersed advance with distributed aim...against a number of objectives simultaneously."<sup>20</sup> He believes that "the cumulative effect of partial success or even mere threat, at a number of points may be greater than the effect of complete success at one point."<sup>21</sup> Similarly, General Yegorov, Chief of the Soviet General Staff in the 1930's, was also

interested in simultaneous operations but his focus was on the depth of the theater. In order to transform a tactical penetration into an operational breakthrough he advised attacking,

simultaneously with a strike from the front, to attack enemy reserves, his aviation and supply units even more deeply, and so deprive him of the ability to broadly maneuver both these reserves and those new troops which can arrive by railroad or with the help of vehicular transport.<sup>22</sup>

Thus, whether conducted throughout the breadth or depth of the theater, operational simultaneity is a significant component of most successful operational art.

Likewise, the conduct of successive operations is also characteristic of operational art. Clausewitz wrote that "war does not consist of a single blow."<sup>23</sup> Rather, it is a series of successive blows that must be successively linked. When timed effectively, he notes that this successive linkage produces a "harmony in actions that lead to a final success."<sup>24</sup> Tukachevski's study of previous wars led him to similar conclusions. He wrote that "the impossibility in the presence of modern wide fronts to destroy an army by a single blow compels us to achieve this by a series of successive operations..."<sup>25</sup> He further believed that effective operational control for such successive operations is based, "on striking and destroying dispersed enemy battle and operational formations piecemeal by concentrating overwhelmingly manpower and equipment against individual units."<sup>26</sup> A. A. Svechin, a 1927 faculty member of the Funze Academy and General Staff Academy, had similar thoughts on successive operations. He believed that,

...the path to the final aim [operational objective] is broken up into a series of operations, ...subdivided in time, by more or less sizable pauses, comprising differing territorial sectors of a theater of war and differing sharply as a consequence of different intermediate aims.<sup>27</sup>

Fundamental to this concept of successive operations is the principle that, although separate and distinct, all actions contribute to the unity of a common operational goal. Svechin wrote that these successive operations are "...connected in such a way that they merge into one gigantic operation."<sup>28</sup> Likewise, Tukachevski believed that operational art requires a linkage of these successive operations to develop a "coherence to the point where they are conducted as separate extensions of a single operation... though widely dispersed in space..."<sup>29</sup> Clearly the synchronization of both simultaneous and successive operations toward a common end is a critical component of operational art.

In addition to synchronizing operations, the ability to conduct operations across the breadth and depth of the theater is also a fundamental component of operational art. Colonel Holder observes that operational art "differs clearly from tactics in its scope and perspective."<sup>30</sup> This view was shared by Tukachevski who insisted that a broad front is a necessary component of successful operational maneuver. He believed that "the broader the front of attack, the greater the chances of a successful operation, other things being equal."<sup>31</sup>

Complementing a broad front strategy the Soviets also understood the importance of operations dispersed throughout the depth of a theater. When properly synchronized, offensive

operations throughout the enemy's depth can effectively paralyze his ability to react. This sets conditions allowing tactical penetrations to develop into operational successes. Tukachevski noted that the problem of "simultaneous deployment of combat operations over a large depth..." is "central... in operational art."<sup>32</sup> He advocated "deep arrival in the enemy's rear area...to create congestion...and to independently attack his large reserves or withdrawing forces."<sup>33</sup>

Similarly, the Soviets stressed the significance of defensive operations dispersed in great depth. A. Golubev, a respected instructor at the Soviet General Staff Academy in the 1930's, proposed that "defense on the operational scale was to take on a deep nature and be capable of holding even in case of penetration by enemy tank formations..."<sup>34</sup> The defense is to impose its will on the attacker by using a "labyrinth consisting of anti-tank areas 'fortresses' in the operational depth..."<sup>35</sup> By its nature, operational art is broad in scope. Effective use of this operational expanse, throughout the depth and breadth of the theater, is an important component of successful operational art.

In order to execute operations across the depth and breadth of the theater, the operational commander must be able to provide logistical support for distributed operations. The Soviets recognized the criticality of logistics to operational art as early as the 1920's, and focused special attention on its study at the Frunze Academy.<sup>36</sup> During this era, Tukachevski postulated

that, "resupply must be assured through the whole duration of the operation, and for the conduct of follow-on operations."<sup>37</sup> To accomplish this he stated that, "each army and unit must have its own line of communications, which must constantly supply it..."<sup>38</sup> Tukachevski clearly appreciated the inseparable nature of operational logistics to operational art. He believed that commanders who develop operational plans without insuring the logistical feasibility were "committing a crime."<sup>39</sup>

Professor Schneider similarly attests to this key, but often over looked, component of operational art. He succinctly notes that "logistics is the final arbiter of operations."<sup>40</sup> Unless the operational commander conducts sound logistical planning and execution, his attempts to conduct operations across the breadth and depth of the theater will fail.

This theoretical examination of the principal components of operational art has allowed us to dissect operational art into four discrete components. These theoretically derived components now become our criteria, forming the analytical lens we will use to conduct the critical analysis of Iraqi operational performance.

### III. HISTORICAL BACKGROUND AND WAR CHRONOLOGY

The Iran-Iraq border region is known as one of the greatest "ethnic and cultural divides on the earth's surface".<sup>41</sup> Because of racial, religious and cultural differences, continuous conflict has plagued this area since ancient times. Religious friction

exists between the more fundamental Shiite Muslims and the more liberal Sunni Muslims. This has been exacerbated by the cultural differences that exist between the Iraqis of Arab descent and the Iranians, of Persian descent. Further complicating the cultural divide, the Iranians speak Farsi and the Iraqis speak Arabic. As a result of these fundamental differences, the people of the region are deeply polarized by mutual mistrust and hatreds. These historic predispositions for conflict were brought to a boil in the 1970's by Iran's attempts at regional hegemony. Most troubling in this regard was Iran's Shah Reza Pahlavi's massive arms race and his nation's support to the Kurdish resistance movement in Iraq. In an act of appeasement, Iraq signed the Algiers Agreement ceding half of the historically contested Shatt-al-Arab waterway in exchange for Iran's pledge to terminate assistance to the Kurds. Sharing this waterway comprising a "127 mile long confluence of the Tigris and Euphrates rivers," provided critical strategic access for both nations to the Persian Gulf.<sup>42</sup>

This agreement of dual sovereignty offered hope to reduce international tensions between the two nations. However, the perceived settlement was soon overshadowed by Iran's renewed quest for regional hegemony, this time under the Ayatollah Khomeini, spiritual leader of Iraq's Shias. The pivotal event on this road to war was the Iranian revolution and the foundation of the Islamic Republic intent on the overthrow of the Baathist regime through the export of Islamic fundamentalism.<sup>43</sup>

This fundamental polarization clearly locked Saddam Hussein,

Chairman of the Revolutionary Command Council (RCC), and his Baathist party in a struggle for national survival. Iranian efforts to destabilize the Iraqi government focused on assistance to Kurdish separatists and to Shiite underground movements. With Shiites comprising over one half of the Iraqi population, the predominately Sunni, Baathist party feared the potential destabilizing effect of internal Iranian meddling. This interference was so direct that it included personal appeals by Khomeini to the Iraqis to "wake up and topple this [Baathist] regime in your Islamic country before it's too late."<sup>44</sup>

Saddam Hussein's "emotional turning point" for this increasing threatening pattern of Iranian political behavior was probably the attempted assassination, in April 1980, of then Iraqi Deputy Prime Minister Tariq Aziz, by Iranian sponsored terrorists.<sup>45</sup> This action culminated nearly one year of border skirmishes and verbal sparring between the two autocrats. Believing they could no longer co-exist with this neighboring regime bent on their destruction, Iraq's Revolutionary Command Council decided to settle their political problem with the use of force.

While not absolutely clear, it is likely that initial Iraqi strategic aims for the use of force included the following:<sup>46</sup>

1. Alteration of the 1975 Iran-Iraq border agreement, reestablishing Iraqi control over the Shattl-al-Arab waterway.
2. Reestablishment of control over three gulf islands

seized and occupied by the Iranians since 1971.

3. The liberation of their "arab brothers" and possible retention of the oil rich Khuzistan province of Iran, formerly Arabistan.

4. The destabilization of Khomeini's "racist, aggressive and expansionist" Shiite regime, which threatened the long-term survival of the Baath government.

5. The establishment of Iraq as a regional superpower and leader in the Arab world.

While Iraqi war aims may appear reasonable, they are flawed because they are based on several key, strategic miscalculations. These miscalculations impacted on Iraq's strategic and operational prosecution of the war. Probably Hussein's most serious mistake was the insistence on limited military objectives, in spite of advice to the contrary from both his senior military and civilian advisors.<sup>47</sup> This limited approach was clearly flawed because it assumed that the Iranians would oblige Iraq by also fighting a limited war. With the main Iraqi military effort threatening Iran's primary oil producing province and more significantly the legitimacy of the revolutionary Islamic government, Khomeini was locked into a total war of national survival.

Further miscalculations underestimated both Iran's national resolve and its military strength. (see Appendix C. for a pre-war military strength comparison) "There is a government on every corner in Iran", was a phrase commonly used by Iraqis to describe the turmoil in Tehran.<sup>48</sup> This turmoil was falsely assessed to be

indicative of the Iranian government's inability to develop a unified response to Iraq's incursion. Similarly, Iranian military might was underestimated. While significant, Iraq over estimated the detrimental effects of the military purges, which occurred after the Shah's exile, and the corresponding flight of Iranian and Western technicians. The net effect of these strategic miscalculations was an Iraqi prediction that the war could be won in a mere two weeks.<sup>49</sup> This was not to be the case. Eight years and more than one million Iraqi casualties would ensue before a regional peace could be arranged.

To review this eight year war it must be broken into phases. Phase one, the "Iraqi Invasion" lasted from September 1980 to October 1980. The invasion plan was reportedly based largely on a 1950 plan. Drafted with British assistance, this original plan was conceived with the war aim of obtaining territorial concessions along the disputed Shat1-al-Arab.<sup>50</sup>

Attempting to combine their updated British plan with an air campaign patterned on the Isrealis' 1967 war, Iraq initiated hostilities on 22 September with their air force. Attempting to neutralize the Iranian air force on the ground, this large-scale strike hit ten military airfields in Iran.<sup>51</sup> Poor targeting intelligence; insufficient air frame per target allocation; and rigid centralized control of execution doomed this counter air campaign to failure.

Iraq commenced its ground attack the same day committing about "half of its combat-ready manpower", about seven divisions,

along a 700 kilometer front.<sup>52</sup> Ground forces attacked on four axis with the main effort in the south against the oil rich Khuzistan province. Supporting attacks to the north blocked approaches to Baghdad.<sup>53</sup>

Initial Iraqi successes were due, in large measure, to the light and generally uncoordinated nature of the Iranian resistance. Resistance stiffened with the siege of the cities of Khorramshar and Abadan, major population centers in Khuzistan. Khorramshar eventually fell but Abadan was successfully reinforced by the Iranians and held out. By November, Iraqi forces held a strip of Iranian territory 800 kilometers long and 20-60 kilometers deep.<sup>54</sup>

This "limited dynamic war" developed into the war's second phase "general static"<sup>55</sup>, which lasted from November 1980 to September 1981. Action generally slowed on both sides during this period as both nations mobilized and deployed additional forces. The Iraqis solidified their territorial gains and improved and protected their lines of communications into Iran. Although not officially announced by Iraq until 7 December 1980, it was clear by this point that Hussein had switched his strategy to an operational defense designed to retain captured Iranian territory.<sup>56</sup>

For the most part, action was limited to minor adjustments in defensive positions and to artillery exchanges. One notable exception was a failed Iranian counter-offensive to relieve the city of Susangerd. Here, after meeting with initial successes and

penetrating deep into Iraqi lines, the attacking Iranian armored division was cut off and destroyed, losing 250 tanks.<sup>57</sup>

The third phase of the war, "Iranian counter-offensive", lasted from September 1981 to June 1982. It was characterized by a series of Iranian counter-offensives and Iraqi withdrawals toward the border. During this phase Iran was able to wrest the initiative from Iraq through six major counter-offensives. Successes were achieved from Dezful in the north to Abadan in the south, and for the first time included human wave tactics developed to offset the quantitatively superior Iraqi ground forces. The largest of these counter-offensives involved some 40-50,000 Iranian regulars supported by 30,000 Revolutionary Guards.<sup>58</sup> Their multi-phased operation enveloped and badly mauled three Iraqi divisions and forced an Iraqi redeployment to the vicinity of the Iran-Iraq border. Faced with a succession of setbacks, on 20 June 1982 Saddam Hussein formally announced that his forces would withdraw completely from Iranian territory.<sup>59</sup>

The fourth and longest phase of war, "stalemate", began with the Iraqi withdrawal in June 1982 and continued through April 1988. Deployed behind extensive defensive fortifications along its frontier, Iraq defended with three corps on the border and one in strategic reserve. Hussein's forces prepared for an extended war of exhaustion. In the southern sector eight divisions defended Basra. Three divisions in the central sector protected Baghdad, and two more secured the northern front.<sup>60</sup>

While Iraq was defending, Iran launched a series of

offensive operations with the objective of seizing Iraqi territory, and thereby creating political conditions which would topple Hussein's regime. Through 1985 this effort included ten major operations and numerous smaller attacks. While Basra, the second largest Iraqi city, was the focus of four of these offensives, the others ranged "up and down the frontier as if looking for a weak spot in Iraqi defenses".<sup>61</sup>

Most of these offensives produced only limited to moderate success. Iraqi defenders usually blunted the frontal attacks, inflicting disproportionately large casualties on Iranian forces. Operations Wal Fajr-5 and Wal Fajr-6 illustrate the cost of these Iranian efforts. Launched in early 1984 to sever the Basra-Baghdad highway, these operations failed to accomplish any militarily significant objectives, while incurring an appalling loss of over 40,000 Iranians compared to 9,000 Iraqis.<sup>62</sup>

In the spring of 1985 the ground war stagnated and the Iraqis shifted their focus to the "Tanker War", attacking vital oil shipping assets in the Persian Gulf. Realizing they could not afford an indefinite war of attrition with Iran, the Iraqis hoped to draw western powers into the war, and thereby force Iran to terminate hostilities.

The "stalemate" phase concluded in February 1988 with the Iranian's only significant accomplishment during this time, the capture of the Faw Peninsula. The Iranians employed 150,000 men, on two axis: a diversionary effort toward Basra and the main effort toward the Port of Faw.<sup>63</sup> Assisted by tactical surprise,

the main effort succeeded in rupturing Iraqi defenses and rapidly securing the Faw peninsula. Although this last Iranian effort resulted in a tactical success, it caused them to finally exceed their moral and physical limitations and to operationally culminate.

During the fifth and final phase of the war, "Iraqi counter offensive", April 1988 through September 1988, the Iraqis rapidly shifted from the operational defense to the operational offense. This final offensive campaign entitled Tawakalna ala Allah, "In God We Trust", comprised five successive battles.<sup>64</sup> The first battle drove the Iraqis from Faw peninsula. Subsequent, successive battles moved north as the trafficability for mechanized forces afforded improved maneuver. In all battles the Iraqis used combined arms tactics employing up to 200,000 troops to attain combat ratios as high as 20:1 at the decisive point. Additionally, all battles included long-range artillery fires integrated with chemical fires, helicopter and fixed wing CAS, and massed armor.<sup>65</sup>

With this final successful Iraqi campaign, Iran recognized its untenable military position and agreed to end the war. Accepting United Nations Resolution 598, these two dueling autocrats concluded an eight year agony which had financially and militarily exhausted their respective nations.

#### IV. OPERATIONAL ANALYSIS

Iraqi military performance throughout the war showed evolutionary improvement. Early in the war, very few components of good operational art were apparent. However, by the war's end, clear evidence of Iraqi operational art was discernable.

Although some of the causes for its poor initial performance remain a mystery, many are apparent. Five significant shortfalls, which stymied both the tactical and operational performance during the first part of the war, are clear. First, the officer corps was over-politicized. Political reliability and loyalty were rewarded over professional competence, fostering a disproportionately large percentage of officers both from Hussein's extended family and from his home province of Tagrit. The bulk of the officers above the grade of colonel, and thus the operational and strategic planners, were primarily political appointees.<sup>66</sup> Commenting on Iraq's officer corps near the beginning of the Iran-Iraq war, a British officer noted that "...the Iraqi General Staff seems to be a farce", he further observed that the "Iraqi soldiers are tigers lead by a pack of jackasses."<sup>67</sup>

Second, tight political control of military operations was maintained by Baghdad. With Hussein operating as the master puppeteer, the command and control (C2) structure precluded operational initiative and flexibility by field commanders.<sup>68</sup> This shortcoming is exemplified by the slow deliberate movement of the

initial invasion forces. Because of political sensitivity, commanders proved unwilling to deviate from prescribed plans when faced with unexpected successes which could have been easily exploited.

Third, the officer corps suffered wholesale purges in 1982.<sup>69</sup> While this move by Hussein served to replace many political cronies with more technically competent officers, it reduced the size of the officer corps as the army was expanding and in need of more leaders. Additionally, it likely sent shock waves of turmoil and suspicion throughout the surviving military leadership.

Fourth, in conjunction with the purges, the leadership of the Army was further stretched by the rapid and successive expansions of the force. Between 1973 and 1988 this growth at least quadrupled the army's size, stressing an already extended leadership.<sup>70</sup>

Lastly, prior to the Iran-Iraq war, the Iraqi military had no experience with total war. The commitment of two divisions in the 1973 Arab-Israeli War for a quick conflict offered few parallel lessons, both in terms of scope and duration. Similarly, of limited utility was its experience in counter guerrilla operations against the Kurds. The nature and magnitude of this conflict were different than the war with Iran.

By 1986 the war experience had matured both the military and political military leadership to a level where these five initial shortfalls were significantly mitigated. Hussein appears to have realized that excessive operational control of the military was

detrimental to his war effort. His reduced personal involvement and increased reliance on a performance oriented officer corps yielded improved C2. In conjunction with this, the expansion of the Republican Guard Force from a palace guard element to a strategic operational maneuver force, a "mini-corps", significantly increased the ground force capability. Lastly, after five years of war the military, through experience, had come to appreciate the criticality of combined arms operations. These developments in the Iraqi military performance were fundamental to the elements of operational art demonstrated by the Iraqi military toward the end of the Iran-Iraq war.

#### - ABILITY TO CONDUCT JOINT OPERATIONS -

By war's end, the Iraqis had begun to exhibit the ability to conduct joint operations. This was clearly not the case at the beginning of the war. Deliberately organizing joint interoperability is classically feared by many third world leaders. Combining the powers of the armed forces is often viewed as a threat to regime stability. This was likely a factor in the services' early lack of joint interoperability. Additionally, the early senior leadership proved to be largely "incapable of coordinating and integrating the operations of the separate services."<sup>71</sup> As a result each performed primarily as independent agencies.

A further factor complicating joint operations was the highly technical nature of the air force. The air force found itself focused internally trying to incorporate a steady infusion

of foreign technology with a third world population base hardly capable of absorbing the technology transfer. Compounding their equipment mix of Soviet, Czech, British and French aircraft was an equally diverse collection of doctrine and instruction - British, Soviet and Indian.<sup>72</sup> Thus, the ongoing battle within the air force for technical proficiency largely precluded a focus on joint interoperability with the army and navy.

Early years of the war saw only limited joint operations. The Iraqis knew that they were not skilled in joint air-ground operations. This factor, combined with lessons from the 1973 Arab-Israeli War, led them to conclude that close air support was too costly an endeavor to justify risking valuable air frames. In this regard, Saddam Hussein told his National Assembly in November 1980, "We will not use our air force. We will keep it. Two years hence our air force will still be in a position to pound Bani-Sadr and his collaborators."<sup>73</sup>

An additional Iraqi perception shaping the early employment of air power was the view that the Iraqi Air Force's primary mission was to serve as a deterrent to Iranian attempts to strike at strategic targets - primarily Iraqi oil facilities. Key to the ability to deter was preservation of force for counterstrike missions against Iranian oil facilities.<sup>74</sup> Joint employment of the limited air force air frames in CAS and BAI roles threatened the future resourcing of more important strategic missions.

Like the air force, initial joint naval operations were also limited. Early joint operations included naval gun fire support

along the shore of the Shatt-al-Arab and amphibious operations, supporting the Khorramshahr - Abadan Campaign during phase one of the war.<sup>75</sup> While significantly smaller than its Iranian counterpart, had the Iraqi navy conducted effective joint operations with the Iraqi air force, the Iranian navy might have been decisively defeated early in the war.<sup>76</sup>

As the war progressed, so too did the frequency and effectiveness of Iraqi joint operations. As the air force became more assured of its command of the air, battlefield air interdiction increased. While on the operational defensive, fixed wing assets were often employed effectively, in conjunction with armor and helicopter gunships, to reduce salients of attacking Iranian forces. Deeper application of air also began to reflect a joint nature. Attempting to disrupt Iranian ground offenses, BAI missions were flown both prior to and during the ground offensives. For example, before Iran's Bal Fajir and Karbala offensives, the Iraqi air force conducted increased strikes against Iranian troop concentrations, logistics facilities and economic targets.<sup>77</sup>

When the Iraqis transitioned to the operational offense in 1988, BAI was a significant integrated component of offensive operations. Ground operations were assisted by surge rates of up to 300 ground attack sorties per day.<sup>78</sup> Although limited by poor targeting, interdiction missions against lines of communication contributed to Iraqi successes. For example, before and during the Iraqi offensive in June 1988, near Dehlovan, Iraq, aircraft

destroyed all highway bridges leading to the battle area, effectively cutting it off from Iranian reinforcement and resupply.<sup>79</sup>

Likewise, but to a lesser extent, the navy was incorporated into the Al Faw battle, the first battle of the Tawakalna ala Allah campaign. Amphibious landings, supported by naval gunfire were synchronized to support this multi-corps advance and contributed to the Iraqi victory.<sup>80</sup>

Similarly, the fourth battle of this campaign, "On God We Rely", exhibited coordinated joint operations, but of a type not previously observed in this war. Assaulting the Majhoon and Havizeh Marshes, the Iraqis employed the Republican Guards in the north and the Third Army along the southern axis of advance. Supporting the close battle, a brigade-size airborne drop was reportedly employed deep against the Iranian rear.<sup>81</sup> Although small by WW II airborne standards, this reported airborne deployment shows significant progress in the design and conduct of joint operations.

Lastly, in the final year of the war, the Iraqis integrated guerilla operations, further demonstrating a capability to conduct joint operations. Early in 1988, while building up conventional forces in the south, Iraq supported attacks by the Mujahidin-al-Khalq (The People's National Liberation Army) along a 14 mile front in the north, vicinity Shush.<sup>82</sup> In the fifth and last major battle of the Tawakalna ala Allah campaign, the Iraqis again employed guerrilla forces, this time conducting a joint

conventional-guerilla offensive. Conventional forces spearheaded an attack quickly penetrating 40 miles deep inside Iran. At this point, the Peoples National Liberation Army assumed the offensive and carried the penetration another 20 miles into Iran. Having accomplished their objective, to make it clear to the Iranian leadership that future Iraqi operations could also penetrate deep inside of Iran, they withdrew their support for the Peoples National Liberation Army. Lacking joint army and air force support, the guerrilla army was destroyed by a hastily mobilized Iranian force.<sup>83</sup>

By war's end it was apparent that the Iraqis appreciated the importance of joint operations. Although falling short of superpower norms in both scope and sophistication, Iraqi operational performance exhibited significant joint characteristics. The Army clearly remained the premier service, but its operations developed an increasingly joint nature, incorporating synchronized support from naval, rebel, and most significantly, air force elements.

#### **ABILITY TO CONDUCT SYNCHRONIZED, SIMULTANEOUS AND SUCCESSIVE OPERATIONS**

In order to be effective, joint operations must be synchronized. Synchronization of simultaneous operations allows maximum combat power to be developed at the decisive point and time. Early operational performance exhibited little operational synchronization. This operational advantage was negated because "Iraq's land and air operations were planned in virtual isolation

from each other."<sup>84</sup> Following the initial botched counter-air operation, the Air Force "retreated out of the conflict for several months, often leaving ground forces to fight on their own."<sup>85</sup> Additionally, even when synchronized, the ordnance delivered was frequently insufficient. Examination of early Iraqi Air Force performance indicates that they usually flew less than 10% of the sorties required to destroy large Iranian Army targets.<sup>86</sup> Thus, the army commanders normally did not receive operationally significant effects from air support, i.e. synchronization with the Air Force was ineffective.

Initial synchronization problems were not limited to air-ground operations. As the army conducted its initial ground invasion with seven divisions, the force lost momentum and cohesion. Maneuver elements became separated from their combat support and combat service support. This synchronization failure broke the operational tempo causing divisions to have to pull back to receive support.<sup>87</sup> This poor initial operational synchronization was probably the result of two factors. First, the previously discussed politicized officers corp had produced many technically incompetent officers. Lacking basic skills in their own discipline and in staff planning techniques, these men were unprepared to coordinate the operational synchronization of combat power. Lastly, the military lacked fundamental experience in fielding and employing large forces. Thus, proficiency at operational synchronization had to be acquired through experience as the war progressed.

As the war settled down into an operational stalemate, the Iraqis were forced to synchronize their defensive operations. Unlike their principle military advisors; the Soviets, Iraq lacked both an expansive operational depth and a massive army. Unable to trade large amounts of space for time, the Iraqis compensated by increasing their own operational mobility while decreasing the enemy's. Renowned for their engineering capability, the Iraqis built elaborated defensive regions in depth. These complexes were then connected by earthen berms and reinforced with numerous strong points.<sup>88</sup>

This countermobility effort was complemented by a comprehensive plan to create operational mobility. Interconnecting the complexes, Iraqi engineers constructed extensive road networks behind them, regulated by an efficient traffic control system. These networks of interior lines allowed the Iraqis to rapidly launch large counter attack forces. Completing this operational defensive concept, the Iraqis purchased over 2,000 heavy equipment transporters which allowed rapid repositioning of mechanized and armored units up to corps size.<sup>89</sup>

By 1985 the Iraqis had improved their proficiency at conducting effective, operational-level defenses. In his book, The Future of Land Warfare, Chris Bellamy states that, "the essence of operational art in the defense is to identify a breakthrough and destroy it before the trickle becomes a flood."<sup>90</sup> The Iraqis adopted a similar operational concept comprising three

synchronized phases: 1) absorb and shape the penetration, 2) cut off the penetration, and 3) rapidly employ a combined arms reserve to destroy encircled forces.

A classic example of such a synchronized operation was the defeat of a 100,000 man Iranian offensive, vicinity Maghon Island in March 1985. During this six day Iranian offensive, the Iraqis adeptly employed 25 brigades (8 divisions) in an effectively synchronized "large scale mobile defensive battle."<sup>91</sup> After initially falling back, Iraqi forces counterattacked to cut off the penetration. The combined arms effort to reduce the encircled Iranians yielded 10,000 Iranian KIAs.<sup>92</sup>

Complementing this evolving capability to synchronize operational defensive actions, by the final campaign the Iraqis demonstrated an ability to synchronize offensive operations. In preparing for their operations on the Al Faw peninsula, large multi-division rehearsals were secretly conducted on full scale mock-ups of their objectives and on terrain resembling the objective area.<sup>93</sup> "Soviet advisors and manuals were used" to direct the rehearsals of the assault which was to be a "closely coordinated Warsaw Pact style, combined arms operation."<sup>94</sup> This extensive rehearsal effort was key in synchronizing the operations.

Synchronization was also apparent in the timing of the operational deception effort. Shortly before many major operations commenced, Hussein and the Minister of Defense (MOD) visited the troops at the front.<sup>95</sup> Synchronized to divert Iranian

attention north, both Hussein and the MOD visited the northern theater of operation just prior to commencement of the Tawakalna ala Allah campaign in the south. This deception story was provided further credibility by troop movements designed to portray a concentration of forces for attack in the north.<sup>96</sup> These carefully timed deception efforts appear to have successfully contributed to achieving operational surprise.

The Tawakalna ala Allah campaign also exhibited other indicators of the Iraqi military's ability to synchronize operations. Throughout the five battles comprising this campaign, offensive operations were "routinely supported by deep fires and integrated chemical fires."<sup>97</sup> These deep fires included massed tubed artillery, helicopter gunships, battlefield air interdiction, and deep interdiction. At one juncture the effect of the Iraqi attack helicopters was so devastating that the Iranians accused the U. S. of conducting combined operations with the Iraqis.<sup>98</sup>

In addition to synchronized fires, operational maneuver by multiple corps-sized forces maneuvering on different axes was demonstrated. Although operating against a significantly smaller enemy force, the Iraqi command and control effectively synchronized the maneuver of thousands of tanks and in excess of 200,000 troops in the theater of operations.<sup>99</sup>

During this final campaign, Iraqi synchronization was also evident between the strategic deep strike campaign and the ground offensives. A simultaneous escalation in strategic air-land

missile attacks was conducted against Iranian economic facilities, religious sites, and population centers. This included the introduction of a modified, long-range scud missile, the Al Husayn, which for the first time allowed Tehran to be successfully targeted.<sup>100</sup> Scud attacks jumped from none in February to 137 in March.<sup>101</sup> Similarly, air attacks increased with up to ten sorties per day flown against key cities. Conducted concurrently with the ground offensive, these strikes helped to set the conditions for battlefield success. High Iranian battlefield losses, combined with their relative strategic impotence to protect key targets from long range strikes, had a synergistic effect - degrading Iranian population, leadership, and soldier morale.

Lastly, synchronization was further evidenced by the successive nature of the final campaign. During this four month campaign, the Iraqis fought and decisively won five major battles. With each victory they moved north and prepared for their subsequent operations. This successive operational pattern appears to have been largely driven by weather constraints. As the ground dried up and could support armored maneuver, the operations moved north avoiding the heat in the south.<sup>102</sup> According to the Iraqis, these battles were not coincidentally orchestrated, but rather were "conceived as a single large campaign."<sup>103</sup>

Although initial Iraqi operations displayed little synchronization, the capability to synchronize simultaneous and successive operations clearly evolved as the war developed.

Effective orchestration of operational defenses was clear by 1985 and by 1988 the Iraqis had shown an ability to orchestrate offensive campaigns. While not without problems, the Iraqi military had clearly grasped the significance of operational synchronization and was refining this capability.

#### **ABILITY TO CONDUCT OPERATIONS ACROSS THE BREADTH OF A THEATER**

Like the synchronization of simultaneous and successive operations, the ability to conduct operations across the breadth of a theater is another characteristic of operational art demonstrated by the Iraqis. Throughout this war, operations were conducted across the breadth of the 730 mile Iran/Iraq frontier. Geography naturally segregated this border into three regions, the mountainous north; the open central plain, the only sector truly suited for armored and mechanized operations; and the marshy southern sector.<sup>104</sup> The characteristics of these regions each necessitated a somewhat different operational approach. Counter-guerilla operations dominated combat in the north while more conventional operations were the norm in the central and southern sectors. Thus, the Iraqis frequently found themselves simultaneously fighting more than one type of war along this broad front.

Beginning with the initial invasion, the Iraqi's operational scope was unquestionably broad. Although the main effort was directed toward the cities of Korramshar and Abadan, offensive operations were conducted across most of their border with Iran.

When the invasion ground to a halt, the Iraqi forces dominated a strip of Iranian terrain 800 kilometers long and 20-50 kilometers deep.<sup>105</sup>

Upon transitioning to the operational defense, the scope of Iraqi operations remained broad. Three Iraqi corps defended along the border, each holding sectors of approximately 200 kilometers. Additionally, during the defense of Basra in 1986, Iraq demonstrated the ability to shift a corps laterally in theater to reinforce the Basra area.<sup>106</sup>

In April 1988 the Iraqi counter offensive commenced, in the south and eventually ranged over the entire Iraqi frontier. However, unlike their initial invasion, the final offensive comprised successive, instead of simultaneous battles. Nonetheless, these five successive battles included multi-corps size actions across fronts in excess of 130 kilometers and with penetrations up to 45 kilometers.<sup>107</sup>

The Iraqi military undeniably conducted operations across the breadth of the theater. As the war progressed, so too did the general efficiency of these broad front efforts. Although the breadth and scope of these operations is dwarfed by that of Soviet operations in WW II, the magnitude of the Iraqi effort is significant when viewed with respect to the Iraqi population base and geography.

## ABILITY TO PROVIDE LOGISTICAL SUPPORT FOR DISTRIBUTED OPERATIONS

In order to sustain their operational maneuver, the Iraqis had to provide logistical support for distributed operations. This critical element of operational art was appreciated by the Iraqis. This appreciation - some have called it an obsession - with logistics was rooted in previous Iraqi combat experience. Following their 1974-1975 border war with Iran and their Kurdish campaign, the Iraqi military had culminated logistically and was on the verge of total collapse. Additionally, their road march deployment to Syria in the 1973 war of over 1,000 kilometers significantly attrited their combat power and taught them the value of heavy equipment transporters.<sup>108</sup> Together, these even gave the Iraqi military a strong appreciation for the importance of operational logistics.

To ensure that the forces conducting operational maneuver had no logistically imposed constraints, the support system was designed to create an environment of logistical self sufficiency. This was accomplished by consistently practicing intentional oversupply vice attempting to estimate precise utilization rates.<sup>109</sup> Under this concert, stockpiles dispersed in the combat area and the transport area contained supplies for up to 40 days.<sup>110</sup> Further enhancing the logistical support to operational maneuver was the utilization of a Soviet style push system. This allowed supplies from General Headquarters (GHQ) to be pushed forward on GHQ transportation assets as far as brigade level.<sup>111</sup>

Detailed unclassified information on Iraqi operations is unavailable. However, examination of their operational performance in conjunction with what logistical data that is available suggests that they generally were quite adept at providing support to distributed operations. Well before the fighting was initiated, water, ammunition, and POL storage sites were established "throughout the corps areas where they would be most needed."<sup>112</sup> Upon initiation of hostilities,

the movement of units from their permanent bases to the front, the transfer of troops from one sector to another and the supply of advancing forces within Iraq were carried out quite efficiently.<sup>113</sup>

Following the initial invasion, Iraq demonstrated the ability to successfully sustain its occupation force. Before being pushed out of Iran, Iraq supported nine divisions, over 100,000 troops, along a 750 kilometer front inside Iran for eight months with only minimal supply problems.<sup>114</sup>

Similar logistical sufficiency was evidenced as Hussein defended on Iraqi soil. The Iraqi concept of logistical over-supply is clearly illustrated by examining artillery ammunition utilization rates. While on the operational defensive, Iraq supported counter offensive operations with massive sustained artillery expenditure rates. The Iraqi logistics structure proved capable of resourcing Iraqi guns, allowing daily firing rates in excess of 400 rounds per gun. To further illustrate the magnitude of this level of support, weekly expenditure rates in early 1986 and 1987 were equivalent to what most NATO armies stocked per gun in their entire inventory.<sup>115</sup>

Movement of large quantities of ammunition and other supplies were greatly enhanced by the construction of hundreds of miles of roads. Road construction by Iraqi army engineers produced a network of interior lines of communication varying from six lane hard-tops to improved dirt roads. In addition to more conventional road construction techniques, the Iraqis pioneered a technique of producing "instant roads". This allowed roads to be constructed over seasonably trafficable sand by spraying the surface with a swath of liquid tar.<sup>116</sup> This road network connected supply dumps and logistic facilities with the maneuver elements. Efficient centralized traffic management and vehicle recovery further assured timely, all-season distribution of logistics throughout the theater.<sup>117</sup>

Throughout this war, the Iraqis conducted credible logistical support to distributed maneuver. While Hussein identified logistical shortcomings as a principle reason for some of his army's operational problems, this is not largely believed to be true. A more objective assessment indicates that casualty constraints, imposed by Hussein's cautious mindset, were more likely to blame for most of these operational difficulties.<sup>118</sup> By combining the theoretical sustainment principles of supply push and logistical over-supply with oil dollars to resource the over-supply concept, and the transportation network to move the material, the Iraqis were able to conduct efficient operational logistics.

## V. CONCLUSIONS

This examination of Iraqi operational performance during the Iran-Iraq war yields clear evidence that, by the final campaign of the war, the Iraqis were practicing operational art. They were able to conduct joint operations, effectively integrating major army operations with navy, air force, and guerrilla actions. Throughout their final campaign, operational synchronization was apparent. Multiple corps were employed to attain a combination of terrain and force oriented objectives. Finally, these operations were executed and sustained across a broad, 700 kilometer front.

In addition to evidence of effective operational art in the final campaign, two key problems with the Iraqi's ability to conduct actions at the operational level also were noted. The most significant of these was Iraq's failure to maximize the potential of joint operations. Most critically their inability to precisely integrate air and ground operations precluded them from generating optimum operational combat power. A more effective application of BAI and AI could have significantly enhanced Iraqi operations. Problems with limited targeting intelligence and insufficient sortie allocation plagued the employment of air power throughout the war.

Similarly, a significant reduction in operational synchronization resulted from Baghdad's tight operational control. In spite of Hussein's presence at the front, this problem appeared to have been greatly reduced by the final offensive. However,

indicators suggest that today tight operational control again limits the military. As long as Hussein remains in charge, the potential for excessive GHQ meddling in the design and execution of operations remains a significant likelihood.

In addition to these problems, our analysis has yielded four notable implications: First, the ability of a third world power to conduct operational art against a similar power is not indicative of its ability to conduct successful operational art against a superpower. Most operational level maneuver requires at a minimum, the ability to develop limited localized air parity, at critical times and places. This condition is unattainable by third world nations against a superpower, under most conditions. Failure to draw this conclusion may have, in part, been responsible for Hussein's apparent overestimation of his military's capability in Operation Desert Storm.

Similarly, a fundamental component of Iraqi operational logistics doctrine, logistical over-supply, may not be attainable in the near future. Present arms embargoes, grossly reduced oil revenues, and depleted national military stockages will likely make logistical over-supply difficult. Until rectified, this disparity between Iraqi operational doctrine and physical capability will limit any attempt to conduct effective operational-level actions.

Third, critical to assessing the combat potential of any large third world country is accurately evaluating its ability to conduct operational art. This assessment is difficult,

particularly if the country has not recently been involved in a major conflict. Because of this difficulty, analysts conducting such assessments frequently rely overly on a hardware "bean count". This approach generally represents military capabilities in an overly service-compartmented fashion, thus rendering a distorted perception of a nation's true military capability. The national intelligence community must strive to improve its ability to accurately assess potential adversaries' capabilities -- not only their strategic and tactical capabilities, but also their operational capabilities.

Lastly, in conjunction with assessing the level at which our adversaries can perform operationally, we must also assess the operational capabilities of potential allies. Improving their identified operational shortcomings will significantly enhance their national military power. In turn this will support U. S. international interests. In many cases important operational enhancement could be accomplished by providing training, vice equipment. This would produce strategically significant increases in military capability for a limited cost. With the likelihood of future U. S. security assistance budgets being constrained, such an approach could make operational as well as economic sense.

While it is doubtful that Tukachevski would have been dazzled by Iraqi operational art, he most certainly would have recognized some of his tenants in their eight year war. Like the evolution of operational art in the Soviet Union, Iraqi operational art will likely continue to develop. Although it

appears that Saddam Hussein's gross strategic miscalculations and tactical-operational level meddling have stymied operational art, this is a short term condition. Following his almost inevitable demise, the surviving Iraqi armed forces will be challenged to rebuild their forces. It is probable that the doctrinal foundation for this new military will be the lessons of the Iran-Iraq war.

# APPENDIX A

## - MIDDLE EAST MILITARY BALANCE -

<u>COUNTRY</u>	<u>MSLS</u>	<u>TANKS</u>	<u>FA</u>	<u>A/C</u>	<u>HELOS</u>
Libya	SCUD	1,980	1,720	510	53
Sudan	0	175	170	40	0
Egypt	SCUD	2,425	1,560	520	90
Turkey	0	3,730	200	500	15
Jordan	0	1,130	250	110	24
Isreal	Jerico	3,790	1,400	680	77
Syria	SCUD	4,050	2,500	510	130
Iraq (1)	SCUD	5,500	3,700	510	160
Iraq (2)	SCUD?	2,000	510	309	141
Saudi Arabia	CSS-2	550	450	180	20
YAR	0	660	380	120	0
Kuwait	0	275	90	36	18
Iran	SCUD	500	900	190	110
UAE	0	130	155	60	19
PDRY	SCUD	480	430	110	12
Oman	0	39	75	62	0

Source: "Middle East Conventional Forces," The International Institute For Strategic Studies, 1989.

(1) Iraqi military strength pre-Desert Storm.

(2) Iraqi military strength post-Desert Storm. Figures adjusted using U.S.N.I. Database, March 1991.

## APPENDIX B

### - CRITERIA FOR OPERATIONAL ART -

#### SET A. (SCHNEIDER MODEL)

CRITERIA: ...the emergent characteristics [of operational art] are:

1. The employment of several independent field armies distributed in the same theater of operations.
2. The employment of quasi-army group headquarters to control them.
3. A logistical structure to support distributed operations.
4. The integrated design of a distributed campaign plan;
5. The conduct of distributed operations;
6. The strategic employment of cavalry;
7. The deep strike;
8. The conduct of joint operations;
9. The execution of distributed free maneuver;
10. The continuous front;
11. The distributed battlefield;
12. The exercise of field command by officers of "operational" vision.

SOURCE: Professor James J. Schneider's article, "The Loose Marble--and the Origins of Operational Art", Parameters, March 1989, page 90.

#### SET B. (DUBIK MODEL)

CRITERIA: A campaign is an example of operational art if and only if it contains:

1. synchronized simultaneous and successive operations;

2. those operations are conducted by more than one independent army;
3. those operations are distributed across the breadth of a theater;
4. those armies do not concentrate at one point in the theater;
5. the actions of the armies have a cumulative effect on the enemy over time and space;
6. the actions of armies form a coherent whole reflecting the unitary vision of the overall commander.

SOURCE: LTC James M. Dubik's AMSFP working paper, Class 4-7 Operational Art, 1991.

#### SET C. (SIMPKIN MODEL)

CRITERIA: ...for a concept, plan or warlike act to be considered as "operational", it must meet five criteria. It must:

1. have a mission lying at one remove, and one remove only, from an aim which can be stated in politico-economic terms (in other words from a strategic aim);
2. be a dynamic, closed loop system, characterized by speed and appropriateness of response;
3. consist of at least three components, one of which reflects the opponents will;
4. be synergistic--that is, its whole must have an effect greater than that of the sum of the parts;
5. be self contained within the scope of the mission.

SOURCE: Richard E. Simpkin's Race to the Swift, Washington: Brassey's Defence Publishers, 1986, page. 24.

#### SET D (ZEHRER MODEL)

CRITERIA: When one wants to explain the nature of operational art it would seem useful to point out characteristics that are the most salient. These are:

1. A large degree of freedom of action which includes the

choice between an offensive and a defensive course of action but also the liberty to declare an operation a success or a failure, that is, to judge over victory or defeat on the battlefield.

2. The planning and proceeding against an opposite and proceeding will into the opposite direction. For this reason the requirement to exploit each opportunity, to seize the initiative, is of extraordinary importance in the operational field. This demands constant planning ahead of the actual course of action as well as far sighted assessment of the enemy's intentions.

3. The need to plan and act largely without reliance on regulations and manuals such as they are traditionally available for the tactical level in every army.

4. Force allocation for a given mission is contingent upon the factor space, whereas at the tactical command level space is assigned in accordance with the type and size of the force. The intent and objectives of the operational action can cover the entire depth of the battlefield (forward as well as rearward) and can go beyond established boundaries.

5. Joint planning in cooperation with the other services.

6. Command and control of forces from different nations; this as a result of a military strategic requirement for the area of Central Europe and, to some extent, of Northern Europe.

7. Consideration of the interests of Civil Emergency Preparedness. From this derives, for interest, the task of the German Territorial Army to assure the freedom of maneuver of the forces in the field and the need for close interaction between the NATO forces and the German Territorial Army.

8. Participation in nuclear planning and employment of nuclear weapons as directed by the political leadership.

**SOURCE:** Briefing, 27 February 1991, to The School of Advanced Military Studies, by LTC (German Army) Zehrer, Instructor at the Fuhrungsakademy. Briefing text dated 15 February 1991, pages 9-10.

## APPENDIX C

### MILITARY STRENGTH INDICATORS IRAN VS IRAQ, JULY 1980

<u>INDICATOR</u>	<u>IRAN</u>	<u>IRAQ</u>
POPULATION	38 MILLION	13 MILLION
DEFENSE BUDGET	4.2 BILLION	2.7 BILLION
ARMED FORCES:	240,000:	242,000:
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ARMY	150,000	200,000
NAVY	20,000	4,250
AIR FORCE	70,000	38,000
RESERVES	400,000	250,000
COMBAT AIRCRAFT	445	332
TANKS	1,985	2,850
ARTILLERY	1,000 (+)	800
PARAMILITARY	75,000	79,800

Adapted from William O. Staudenmaier's A Strategic Analysis of the Gulf War, Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, page 5.

Note: figures adjusted for adverse effect of the Islamic Revolution.

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Sensitive to preservation of the national support for his war, Saddam Hussein allowed the desire to insure low personnel casualty rates to drive the design and execution of operations. Most notable in this regard were his desires to encircle and by pass major cities on the initial invasion and his attempts to attain absolutely overwhelming force ratios before engaging in offensive actions.

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